

**A***udit*



**R***eport*

INTERNATIONAL COOPERATIVE RESEARCH  
AND DEVELOPMENT PROGRAM

Report No. 98-121

April 27, 1998

Office of the Inspector General  
Department of Defense

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### **Acronyms**

DUSD(I&CP)	Deputy Under Secretary of Defense (International and Commercial Programs)
ICR&D	International Cooperative Research and Development
ICOG	International Cooperative Opportunities Group
IPT	Integrated Product Team
NATO	North Atlantic Treaty Organization
PA&E	Program Analysis and Evaluation
USD(A&T)	Under Secretary of Defense for Acquisition and Technology



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April 27, 1998

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION  
AND TECHNOLOGY  
ASSISTANT SECRETARY OF THE NAVY (FINANCIAL  
MANAGEMENT AND COMPTROLLER)  
ASSISTANT SECRETARY OF THE AIR FORCE  
(FINANCIAL MANAGEMENT AND COMPTROLLER)  
AUDITOR GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: Audit Report on International Cooperative Research and Development  
Program (Report No. 98-121)

We are providing this audit report for review and comment. This report is the fourth report in a series of reports addressing DoD International Armaments Cooperation efforts which include the Foreign Comparative Testing and the International Cooperative Research and Development programs. We considered management comments on a draft of this report in preparing the final report.

DoD Directive 7650.3 requires that all recommendations be resolved promptly. Because the Under Secretary of Defense, Acquisition and Technology, the Army, the Navy, and the Air Force did not comment on the draft report, we request that the Under Secretary of Defense for Acquisition and Technology, the Army, the Navy, and the Air Force provide comments on the report by May 27, 1998. Although not required to comment, we received management comments from the Acting Director, Program Analysis and Evaluation, which we considered in preparing this report.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. Raymond A. Spencer, Audit Program Director, at (703) 604-9070 (DSN 664-9070) or Mr. Thomas S. Bartoszek, Audit Project Manager, at (703) 604-9014 (DSN 664-9014). See Appendix G for the report distribution. The audit team members are listed inside the back cover.

A handwritten signature in black ink, reading "Robert J. Lieberman", is positioned above the printed name.

Robert J. Lieberman  
Assistant Inspector General  
for Auditing



# Office of the Inspector General, DoD

**Report No. 98-121**  
(Project No. 7AB-0026)

**April 27, 1998**

## **International Cooperative Research and Development Program**

### **Executive Summary**

**Introduction.** International cooperative research and development programs are a family of programs in which DoD and a foreign ally share in the cost and technology advances of research and development efforts. The primary objectives of armament cooperation are to increase military effectiveness through interoperability and standardization, to reduce weapon acquisition costs, and to share technology. Cooperative projects include "Nunn-funded" and other cooperative research and development efforts, joint productions, data exchange agreements, and an engineer and scientist exchange program. The research and development funding provided for the international programs that we reviewed, which included the Multi-Functional Information Distribution System, the Medium Extended Air Defense System, the Joint Strike Fighter, the Future Scout and Cavalry System, and Nunn-Funding programs, was about \$949.5 million.

**Audit Objectives.** The primary audit objective was to evaluate the implementation of the International Cooperative Research and Development Program for major Acquisition Category I programs. Another objective was to follow up on the recommendations in Inspector General, DoD, Report No. 93-009, "International Cooperative Research and Development," October 21, 1992, to streamline the memorandum of understanding process and to centralize management of the international programs. We also evaluated the adequacy of management controls as they applied to the audit objectives.

**Audit Results.** DoD took action in response to recommendations contained in Report No. 93-009. To improve cooperation with our allies in research and development programs, DoD initiated action by:

- establishing a group to identify long-term cooperative opportunities,
- establishing a DoD-wide international agreement database for overseas and domestic research and development and metrics to measure the results of the efforts, and
- improving the international armaments cooperation training for acquisition officials.

However, Defense agencies and the Services still do not adequately consider allied participation early enough in the research, development, and production process of major Defense Acquisition Category I programs. We sent a survey to 86 Defense Acquisition Category I programs. We received 37 program managers' responses as follows:

- of the 37 responses, 32 (86 percent) did not consider cooperative opportunities in the mission need statement,
- of the 37 responses, 29 (78 percent) did not consider cooperative opportunities in the analysis of alternatives, and

- of the 37 responses, 26 (70 percent) did not consider cooperative opportunities in the acquisition strategy.

By not adequately considering international cooperative research and development opportunities early in the process, Defense agencies and the Services miss opportunities to leverage scarce resources, benefit from the technology advances of our allies, reduce the cost of weapon systems through greater quantities procured, and strengthen standardization and interoperability with allies.

The Deputy Under Secretary of Defense (International and Commercial Programs) did not establish a required management control program.

**Summary of Recommendations.** We recommend that the Under Secretary of Defense for Acquisition and Technology include the Deputy Under Secretary of Defense (International and Commercial Programs) as a member of the Analysis of Alternatives Integrated Product Team and require the Defense Acquisition Board to establish exit criteria for Phase 0, "Concept Exploration," to include considering international opportunities.

We also recommend that the Army Training and Doctrine Command, the Chief of Naval Operations, and the Air Force Chief of Staff document their reasons for approving mission need statements that do not explore international opportunities and review the process within the Service to identify international cooperative opportunities for Acquisition Category II and III programs.

Finally, we recommend that the Deputy Under Secretary of Defense (International and Commercial Programs) establish a management control program that includes procedures to assess, correct, and report on management controls and ensure that appropriate personnel receive training.

**Management Comments.** Although not required to respond, the Acting Director, Program Analysis and Evaluation, generally concurred with our finding and recommendations. However, he provided clarifying comments on the content of our report.

**Audit Response.** The comments that we received were responsive to the finding and recommendations. We considered the Acting Director's comments on the draft report content and made appropriate changes.

See Part I for a summary of management comments and our response and Part III for the complete text of management comments. The Under Secretary of Defense for Acquisition and Technology, the Army, the Navy, and the Air Force did not respond to a draft of this report dated January 27, 1998. Therefore, we request the Under Secretary of Defense for Acquisition and Technology, the Army, the Navy, and the Air Force to provide comments by May 27, 1998.

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## **Part I - Audit Results**

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## Audit Background

The International Cooperative Research and Development (ICR&D) program promotes collaborative solutions to the national security. Forces, budgets, and the Defense industrial base are significantly smaller than at the end of the Cold War in 1989. Also, the shift to information-based warfare should refocus the need for alliance interoperability and standardization of major acquisition programs. The way that we acquire and field weapon systems is critical to develop and change to superior technology, to afford decisive military capability, and to enhance economic security. The technological leadership in cost and performance lies with companies and organizations around the globe. The DoD recognizes the need for coalition operations to generate interoperability, intelligence sharing, training coordination, operations, and mutual trust. The ICR&D program enhances coalition warfighting capability and interoperability by linking coalition partners in pursuit of common goals. It also enhances U.S. and allied industrial bases by capitalizing on each other's strengths and exploiting economies of scale through specialization. The program provides more effective use of limited resources by increasing efficiency in funding, personnel, and technology. The new approach of DoD for successful international armaments cooperation is pursuing international arms cooperation only where it makes sense for 21st century coalition operations.

The Deputy Under Secretary of Defense (International and Commercial Programs) (DUSD[I&CP]) is responsible for the formulation and implementation of international cooperative research, development, and acquisition policy. He also manages international cooperation agreements. The Under Secretary of Defense for Policy develops policy for alliances and develops, coordinates, and oversees the implementation of policy and plans for security assistance. Each Service has an international program office that manages, fosters, and facilitates international cooperation. Further description of the mission and function of those and other DoD and Service offices involved in international cooperation are discussed in Appendix C.

The Defense Reform Initiative Report, issued November 1997, addresses the revolution in business affairs within DoD. In that respect, the Secretary of Defense transferred the DUSD(I&CP) to the Defense Security Assistance Agency because a great portion of the work involved program management and associated operational functions. The Program Budget Decision No. 711R, "Defense Reform Initiative-Office of the Secretary of Defense and Defense Agencies," December 17, 1997, made a funding adjustment to reflect changes made in the Defense Reform Initiative Report. The Deputy Secretary of Defense approved the funding change subject to his review and approval of the reorganization plan of the Under Secretary of Defense for Acquisition and Technology (USD[(A&T)]). As of April 15, 1998, the USD(A&T) was still developing the reorganization plan.

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## **Audit Objective**

The audit objectives were to evaluate the implementation of the ICR&D program for major Acquisition Category I programs; follow up on recommendations contained in the Inspector General, DoD, Audit Report No. 93-009, "International Cooperative Research and Development," October 21, 1992, to streamline the memorandum of understanding process and to centralize management of the international programs; and evaluate the adequacy of management control programs as they applied to the audit objectives. The audit scope and methodology, review of the management control programs areas not requiring further review, and organizations and individuals visited or contacted are discussed in Appendix A. Prior coverage, a summary of actions taken in response to the prior audit report's recommendations, and other reviews are discussed in Appendix B.

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## **Finding A. International Cooperative Research and Development Program**

DoD initiated action to improve cooperation with our allies in research and development programs. The actions included the following:

- founding an International Cooperative Opportunities Group to identify long-term cooperative opportunities;
- establishing a DoD-wide international agreement database of overseas and domestic research and development and metrics to measure the results of the efforts, and
- improving the international armaments cooperation training for acquisition officials.

However, Defense agencies and the Services still did not adequately consider allied participation early enough in the research, development, and production process of major Defense Acquisition Category I programs. Responses to our survey from 37 Defense Acquisition Category I programs indicated that:

- of the 37 responses, 32 (86 percent) did not consider cooperative opportunities in the mission need statement,
- of the 37 responses, 29 (78 percent) did not consider cooperative opportunities in the analysis of alternatives, and
- of the 37 responses, 26 (70 percent) did not consider cooperative opportunities in the acquisition strategy.

By not considering international cooperative research and development opportunities early in the process, Defense agencies and the Services miss opportunities to leverage scarce resources, benefit from the technology advances of our allies, reduce the cost of weapon systems through greater quantities procured, and strengthen standardization and interoperability with our allies.

### **International Armaments Cooperation**

International armaments cooperation activities are performed jointly between the United States and our allies to support national security and foreign policy goals. Title 10, United States Code, Section 2350a, authorizes the Secretary of Defense to enter into agreements with our allies to conduct research and development on Defense equipment and munitions that will improve conventional Defense capabilities. The projects must share costs equitably and consider opportunities to conduct cooperative research and development projects early. Title 10 also requires DoD to consider international opportunities early during the formal DoD

review process. The objectives of international armaments cooperation activities are to increase military effectiveness through standardization and interoperability; share the cost of research and development, production, and logistics; use the best technology available; and maintain a strong industrial base through combined acquisitions.

## **International Cooperation Requirements and Policy**

**DoD Directive and Regulation.** DoD Directive 5000.1 “Defense Acquisition,” March 15, 1996, requires acquisition decisionmakers to observe a hierarchy of alternatives, including considering a cooperative development program with our allies, before starting a new Service-unique or joint-Service program. DoD Regulation 5000.2-R, “Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs,” March 15, 1996, states that decisionmakers must review major acquisition programs at milestone decision points before the Defense Acquisition Board approves the next phase of the acquisition cycle. The Services must prepare key documents, which are the mission need statement, the analysis of alternatives, and the acquisition strategy. The mission need statement documents deficiencies in current capabilities and identifies potential solutions, including international opportunities and known systems or programs addressing similar needs. The analysis of alternatives analyzes different alternatives and discusses the interoperability and commonality of systems that are similar in function to those of allied programs. The acquisition strategy implements programs from program execution to post-production support and discusses international cooperative research, development, and production. The Defense Acquisition Board reviews the documents before approving the program to enter the next phase of the acquisition cycle. DoD Regulation 5000.2-R and Title 10 of the United States Code require an analysis of international cooperative opportunities. Appendix D contains a description of each of the key documents and the acquisition process.

**Quadrennial Review and Defense Planning Guidance.** DoD initiated the Quadrennial Review as a fundamental and comprehensive examination of U.S. Defense needs from 1997 through 2015. The review states that the United States will work with its allies to establish a strategy that emphasizes coalition operations and employs international arms cooperation. The FY 1998 through FY 2003 Defense Planning Guidance directs Defense agencies to pursue international cooperation in acquiring Defense systems to prepare for coalition warfare, promote equipment standardization and interoperability, and reduce the cost of Defense acquisition programs.

**Secretary of Defense Policy Memorandum.** On March 23, 1997, the Secretary of Defense stated that DoD policy is to use international armaments cooperation to the maximum extent feasible to achieve deployment, to support standardized interoperable equipment, and to leverage resources by cost sharing.

## **DoD Improvements to International Cooperation**

**International Cooperative Opportunities Groups.** The DoD did not have a mechanism to share U.S. Defense requirements for the Acquisition Category I program with its allies. However, on June 25, 1993, the Deputy Secretary of Defense established the Armaments Cooperation Steering Committee (the Committee) to develop and execute DoD armaments cooperation policies to ensure that DoD considers allied systems during the acquisition process. In October 1995, the Committee recommended, and the USD(A&T) approved, establishing the International Cooperative Opportunities Group (ICOG), which includes the Major System Acquisition ICOG, to examine and identify programs with a high potential for successful international cooperation. On April 9, 1996, the Major System Acquisition ICOG reported to the Committee that no process existed to periodically and efficiently examine cooperative opportunities. The ICOG recommended expanding cooperative efforts, developing a process to periodically examine cooperative opportunities, and offering our allies a list of future major Defense acquisition programs. The USD(A&T) agreed and, in October 1996, began discussing the ICOG at the Four Powers National Armaments Directors meetings. The Four Powers hold meetings semiannually to discuss cooperative projects and issues involving member countries, which include the United States, France, Germany, and the United Kingdom. In the October 1997 meeting of the Four Powers, DoD officials presented the ongoing efforts of the ICOG to the Directors for review and approval. DoD proposed that an ICOG group consisting of the Four Powers meet every 6 months to address cooperative opportunities and the status of ongoing projects. As of April 1998, the Four Powers National Armaments Directors had not agreed on the proposals.

**International Agreement Database.** The research and development databases that DoD and the Services use are ineffective because some overseas locations do not have a database and domestic locations, do not contain similar information, and are not interlinked. However, DoD established a Tri-Service Working Group to formulate a DoD-wide international agreement database that can be shared by all interested parties.

**Overseas Research and Development Databases.** We visited DoD and Service offices in Germany, France, and the United Kingdom to review the methods used to store and disseminate information. All offices except one used a filing system to store information. The only office maintaining a database was the Air Force European Office of Aerospace Research and Development in the United Kingdom. The database included international agreements, potential leads, and a summary of expenditures. However, other agencies and interested parties do not have access to the database because they are not interlinked.

**Domestic Research and Development Databases.** The DUSD(I&CP) developed a DoD database in 1993 for tracking international program information, such as the project title, proponent's name, status of the project, and date of the agreement, if signed; however, the database only included information on international agreements. It was not interlinked with the Services and did not include projects under consideration. The Army Materiel Command, the Navy International Program Office, and the Deputy Under Secretary of the Air Force (International Affairs) all maintain separate databases on international research and

## **Finding A. International Cooperative Research and Development Program**

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development agreements. The objectives of the databases are to coordinate, staff, approve, and manage all international agreements. The systems track information and provide notification of periodic review requirements, but the databases are not interlinked, and each contains a variety of different data elements. For example, the Navy database consists of more than 400 individual records that contain approximately 34 data elements describing the nature of the agreement, value, current status, points of contact, and pending actions. The Army database includes a list of international agreements.

**Tri-Service Working Group.** In June 1997, DoD and the Services formed a Tri-Service Working Group to formulate a DoD-wide international agreement database concept. The Tri-Service Working Group formulated a proposal that meets DoD-wide requirements, has common elements, and can be practically implemented and shared. It also includes metrics to measure the results of the efforts. DoD plans to test a pilot program in June 1998. If implemented, the common database will disseminate information to the Services and other parties here and abroad.

**International Armaments Cooperation Training.** Between February 1996 and December 1997, DoD officials identified weaknesses in the international armaments cooperation training sections in the Acquisition Workforce Certification Program, in the Acquisition Management Functional Board, and in the International Acquisition Education Program. DoD officials initiated actions to correct the deficiencies. The responses of the program managers who replied to our survey (see the "Identification Process" section in this report) reported the lack of training. Of the 37 program managers who responded, 30, or 81 percent, indicated that they did not receive any international training, and 23, or 62 percent, were not aware of ICR&D policies and procedures.

**Acquisition Workforce Certification Program.** The USD(A&T) established the Acquisition Workforce Certification Program to recognize personnel who achieved professional status by meeting prescribed education, training, and experience standards for career levels I, II, and III in acquisition career fields. DoD officials determined that none of the classes designated by the USD(A&T) for level III Acquisition Workforce Certification in the program management career field included instruction on international armaments cooperation. To remedy the lack of instruction, in October 1997, the career level III training began to include a 2-hour session on international armaments cooperation, including policies and procedures. At the same time, DoD officials began to include a half-hour session on international armaments cooperation in level II training.

**Acquisition Management Functional Board.** The Acquisition Management Functional Board acts as the subject-matter expert for USD(A&T) on the qualifications and career development requirements for the program management career field. An International Acquisition Education Working Group advises and supports the Acquisition Management Functional Board by recommending broad goals and policies to maintain a viable international acquisition training and education program. In 1997, the International Acquisition Education Working Group recommended that the Acquisition Management

## **Finding A. International Cooperative Research and Development Program**

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Functional Board include a DoD international representative in its membership. On December 12, 1997, the USD(A&T) approved a charter including the DUSD(I&CP) as a voting member.

**International Acquisition Education Program.** The International Acquisition Education Program includes the following three courses: the Multinational Program Management Course, the International Security and Technology Transfer and Control Course, and the Advanced International Management Workshop. However, only the program managers assigned to international programs were eligible to attend. The International Acquisition Education Working Group determined that, although the program was technically accurate, up-to-date, and educationally sound, it did not meet the intent of the Secretary of Defense memorandum on international armaments cooperation training because it restricted students who could attend. The International Acquisition Education Working Group identified six career fields and specific criteria within each field to more clearly define target audiences and to help identify those who should attend the courses. Actions in that area were ongoing as of April 1998.

### **Acquisition Category I Programs**

As part of the audit, we distributed 86 surveys to the Defense Acquisition Category I programs listed for 1997 to determine whether major acquisition programs considered international partnerships during the research and development phases. Appendix E lists the programs that we surveyed. The survey consisted of five topic areas: ICR&D policies; ICR&D programs; key milestone approval documents, which are the mission need statement, the analysis of alternatives, and the acquisition strategy; foreign partners and fielded allied systems; and training.

Of the 86 surveys sent, we received 37 responses, consisting of 8 from DoD, 11 from the Army, 11 from the Navy, and 7 from the Air Force. With the assistance of DUSD(I&CP), we selected 11 responses for in-depth review.

Results showed that Defense agencies and the Services did not consider allied participation in the early stages of the research, development, and production of major Defense acquisition programs. Of the 37 who responded, 32 (86 percent) did not address cooperative opportunities in the mission need statement, 29 (78 percent) did not address them in the analysis of alternatives, and 26 (70 percent) did not address them in the acquisition strategy, as required by DoD Regulation 5000.2-R. In addition, 14 respondents (38 percent) anticipated potential foreign sales but did not identify potential cooperation in key Defense Acquisition Board documentation. The following table shows the responses, by DoD and the Services, to the questionnaire.



## **Finding A. International Cooperative Research and Development Program**

### **DoD and Services Responses to Survey**

<u>Elements of Program</u>	<u>DoD</u>	<u>Army</u>	<u>Navy</u> (percent)	<u>Air Force</u>	<u>Total</u>
Total survey responses	8 (100)	11 (100)	11 (100)	7 (100)	37 (100)
Potential cooperation not identified in the following Defense Acquisition Board documentation:					
mission need statement	6 ( 71)	9 ( 82)	11 (100)	6 ( 86)	32 ( 86)
analysis of alternatives	6 ( 71)	8 ( 73)	9 ( 80)	6 ( 86)	29 ( 78)
acquisition strategy	4 ( 43)	8 ( 73)	9 ( 80)	5 ( 71)	26 ( 70)
Anticipate potential foreign sales but potential cooperation is not identified in the key documents	2 ( 29)	6 ( 55)	2 ( 20)	4 ( 57)	14 ( 38)

## **Identification Process**

DoD and the Services did not explore potential international cooperative opportunities in the required documentation for the Defense Acquisition Board review. In addition, the Defense Acquisition Board review of the mission need statement to determine whether DoD or Service components considered international cooperative research and development opportunities occurs too late in the acquisition cycle to implement an international major acquisition Defense program. The process for identifying international cooperative opportunities with U.S. allies is described in Appendix F.

**Acquisition Documents.** Defense agencies must prepare and present key documents, which are the mission need statement, the analysis of alternatives, and the acquisition strategy, for all major Acquisition Category ID programs to the Defense Acquisition Board.

**Mission Need Statement.** Of the 37 responses that we received, 32 respondents (86 percent) indicated that they had not considered international cooperation in the mission need statement. Even when the DoD or Service Components identified a potential for partnership, they did not adequately consider it. For example, the mission need statement for the Joint Direct Attack Munitions program identified no international cooperative research and development partners even though the deficiency for more accurate munitions delivery in all weather conditions arose from the Persian Gulf war. An allied system was in development but it did not meet the Joint Direct Attack Munitions requirements. Other allied nations that participated in the war could have had the same deficiencies, which DoD should have identified and examined.

Although the Joint Requirements Oversight Council validates the mission need statement for all Acquisition Category ID programs, each Service reviews and approves it before submitting it to the Joint Requirements Oversight Council. The Training and Doctrine Command is the Army approving authority for the mission need statement. It relies on integrated concept teams to identify possible

## **Finding A. International Cooperative Research and Development Program**

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international cooperative opportunities as the Army develops the mission need statement. The integrated concept team consists of Army activity experts from various disciplines, which may include international personnel in cases of international interest. However, the Army International Program Office is not part of the approval process for the mission need statement and provides input only when requested.

The Chief of Naval Operations is the Navy approving office for the mission need statement, which it reviews for proper format and completeness. Because it has a small staff, the approving office relies on subject-matter experts within the Navy to identify potential allied cooperation. However, the Navy International Program Office does not receive the mission need statement for review or coordination.

The Air Force Chief of Staff is the Air Force approving authority for the mission need statement. The Air Force Deputy Chief of Staff, Air and Space Operations, manages and coordinates the mission need statement process. Major Air Force commands generally prepare and validate the mission need statement. The major Air Force commands rely on technical planning integrated product teams to identify possible international cooperative opportunities. The product teams consist of experts from various disciplines that may include international personnel in case of international interest. As part of the coordination process, Air Force officials send the mission need statement to the Air Force International Affairs Office for review only in the case of international interest. The international office has only advisory input to the process, and its comments may not become part of the mission need statement that the Air Force finally approves.

The Commander, Training and Doctrine Command, the Chief of Naval Operations, and the Air Force Deputy Chief of Staff should document their reasons for approving mission need statements that do not identify international opportunities and should review the process within their Service to identify international cooperative opportunities.

**Analysis of Alternatives.** Of those responding to the survey, 29 (78 percent) indicated that they did not consider international cooperation in the analysis of alternatives. Our review of the Joint Service Advanced Vertical Lift Aircraft V-22 showed that the analysis of alternatives considered a foreign aircraft that was already in production but decided against it because of cost. The program manager did not identify or evaluate other potential partners; however, he expected the aircraft to be used in coalition warfare and saw the potential for a foreign market. Navy International Program Office officials are encouraging the United Kingdom to acquire the aircraft to help reduce the unit cost.

The Director, Program Analysis and Evaluation (PA&E), oversees the analysis of alternatives process. The Services conduct the analysis of alternatives within the integrated product team (IPT), the functional experts for the system under consideration. If the analysis of alternatives IPT does not identify a potential allied partner during the analysis of alternatives process, and if the mission need statement has not identified a potential allied partner, then PA&E will not direct the analysis of alternatives IPT to analyze an international cooperative opportunity. PA&E officials informed us that the DUSD(I&CP) is not part of the analysis of alternatives IPT and has a role only if it already has allied involvement in a similar

## **Finding A. International Cooperative Research and Development Program**

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project. USD(A&T) should ensure DUSD(I&CP) participates on the analysis of alternatives IPTs for all major acquisition program reviews so that he may identify potential international partnerships that the IPT could evaluate.

**Acquisition Strategy Plan.** Of the 37 responses received, 26 (70 percent) indicated that they did not consider international cooperation in the acquisition strategy. Even though the acquisition strategy requires potential international partners to be reviewed, that approach is not effective in the acquisition process because the analysis of alternatives has already addressed the cost, alternatives, interoperability, and commonality that are similar in function to other systems under development or to systems that are already fielded. For example, officials from the Joint Air-to-Surface Standoff Missile program identified the potential for cooperation with the United Kingdom in the mission need statement, but Air Force officials did not analyze the United Kingdom's program until after the acquisition strategy was prepared. Air Force officials decided not to delay the Joint Air-to-Surface Standoff Missile contract awarding until the United Kingdom awarded a similar contract.

**Conclusion on Acquisition Documents.** Although the mission need statement requires the preparer to address key indicators of potential cooperative opportunities, it has no mechanism to ensure that the DoD or Service component considers the similar needs of our allies. The Service validation process does not determine whether the mission need statement addresses international cooperation. Before a system can proceed into Phase 0, "Concept Exploration," the Service must review the accuracy of information provided and ensure that the mission need statement addresses a wide range of alternatives. If the Services require the mission need statements to document their reasons for not exploring international opportunities, the requirement will ensure that they address all international opportunities before they forward the mission need statement for approval. That control will help enforce the requirement to consider possible international participation during the preparation of the mission need statement.

Also, PA&E must ensure that the analysis of alternatives IPT analyzes a full range of alternatives, including interoperability and commonality to systems that are similar to those of our allies, to leverage scarce DoD resources. If the program bases planned resources on international cooperation, other programs could benefit from the cost avoidance for cases in which cooperation is not a viable option. The Service Components must assess the ICR&D opportunities early to address program delays, differences in countries' funding schedules, and technology transfer issues. Otherwise, opportunities for international cooperation are unlikely. One way to achieve early assessment is to include the DUSD(I&CP) on the analysis of alternatives IPTs so that he can identify opportunities for cooperation and ensure that the analysis of alternatives IPT analyzes them. If the opportunities are identified in the mission need statement and analyzed in the analysis of alternatives, then opportunities will be discussed in the acquisition strategy.

**Defense Acquisition Board.** The Defense Acquisition Board is the senior-level forum advising USD(A&T) on Acquisition Category ID or other designated programs. To provide assistance, oversight, and review of the program as it proceeds through the acquisition cycle and to support the Defense Acquisition Board milestone review, DoD establishes an overarching IPT for each program. In addition, the Service or DoD Component establishes a working level IPT overseen

## **Finding A. International Cooperative Research and Development Program**

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by the overarching IPT to support the development of strategies for acquisition, contracts, cost estimates, and evaluation of alternatives. The working level IPTs are the primary ways in which interested Service or Defense agencies, such as the warfighter, participate in the early stages of the program.

The DUSD(I&CP) participates in the overarching IPT and the working level IPT by attending their meetings as an advisor to the program manager and, in that capacity, provides oversight into the program concerning the international aspect. Defense Acquisition Board officials indicated that they rely on the functional experts in the working level IPT and the overarching IPT to identify all possibilities for including international partnerships in the program. If the working level IPT or the Defense Acquisition Board overarching IPT identify possible allied cooperation, Defense Acquisition Board officials indicated that they do not review them until they have the analysis of alternatives and acquisition strategy, which is at Milestone I, "Approval to Begin a New Acquisition Program." The review is too late in the acquisition process because the Defense agencies or the Services have already prepared the analysis of alternatives and the acquisition strategy, which evaluates potential alternatives. A means to ensure that the Defense Acquisition Board reviews international opportunities early is to require them to establish exit criteria for Phase 0, "Concept Exploration," that include discussions concerning international opportunities.

### **Other Acquisition Programs**

Our survey included only Acquisition Category I programs. Some Acquisition Category I programs that we reviewed were non-major acquisition programs before they became major acquisition programs. Our review of the Follow-on to the Tube-Launched Optically Tracked Wire Guided Missile Program showed that the Army did not consider international participation until the program became a major acquisition category program. Only when USD(A&T) designated the program as an Acquisition Category ID program and initiated discussions on international cooperation did Army officials identify four potential international partners. As of April 8, 1998, the Army analysis of alternatives was exploring different alternatives, including international alternatives.

A review of the process for the Services identifying potential international partners for all programs will help them determine whether they are meeting the intent of the Secretary of Defense March 23, 1997, memorandum. The Ballistic Missile Defense Organization's policies and procedures for identifying and assessing potential international partners could be used as a model to assist Defense agencies and the Services in establishing a process to consider international cooperation. The Ballistic Missile Defense Organization management procedures include identifying international cooperative opportunities before approving concept studies. In that respect, the Ballistic Missile Defense Organization included acquisition and readiness offices as parties responsible for identifying and assessing potential opportunities and obtaining reasonable assurance that officials give adequate consideration to potential international cooperation.

## **Conclusion**

DoD has taken significant action to improve the ICR&D process and the understanding of the process. However, to be more effective, the process must identify international cooperative opportunities very early. The successful ICR&D of major weapon systems begins with the warfighter identifying a mission deficiency early in the requirements definition phase. If potential allied cooperation is an alternative, DoD officials must consider it at Phase 0, "Concept Exploration," because that phase consists of studies to define and evaluate the feasibility of alternative concepts and to provide the basis for determining the merits of the concepts at the next milestone. Only then can acquisition personnel develop a common solution. DoD must develop a process to periodically, systematically, and efficiently harmonize requirements with our allies and develop a common solution. The process would begin with requirements determination personnel identifying a potential cooperative opportunity in the mission need statement, the analysis of alternatives IPT evaluating it in the analysis of alternatives, and the acquisition community implementing it through the acquisition strategy. If the Defense Acquisition Board establishes exit criteria for Phase 0, "Concept Exploration," that addresses ICR&D opportunities, the Services document reasons for not exploring ICR&D opportunities in the mission need statement, and the analysis of alternatives IPT includes as a member the DUSD(I&CP), the actions will ensure consideration of international opportunities and, if appropriate, implementation through the acquisition strategy.

If DoD and the Services aggressively pursue international cooperation where possible, they will reduce the cost of weapon systems through greater quantities procured and sharing of research, development, and production costs. In addition, they will meet the intent of Defense planning guidance, the Quadrennial Review, and the Secretary of Defense Policy Memorandum in exploiting the best technology available and ensuring the interoperability and standardization of our weapon systems.

## **Other Management Comments and Audit Response to the Finding**

**Other Management Comments.** Although not required to respond the Acting Director, Program Analysis and Evaluation, generally concurred with our finding and recommendations. However, he disagreed with our conclusion that the Joint Direct Attack Munitions program did not consider international cooperation. The Acting Director stated that the acquisition approach was to satisfy an urgent military need and, accordingly, was a fast track program for acquisition reform. He stated that the allied system mentioned in our report was considered but did not satisfy the requirement. The Acting Director also disagreed with our interpretation of their role in the integrated product team and the team's participants. He suggested clarifying language.

Finally, the Acting Director stated that the draft report incorrectly implied that the Air Force planned to wait until after the United Kingdom's award of its contract for the Conventional Armed Standoff Munitions to make a decision on the Joint

## **Finding A. International Cooperative Research and Development Program**

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Air-to-Surface Standoff Missile program to satisfy the international cooperation requirement. The Air Force did not delay the decision on the program but cooperated with the United Kingdom in the acquisition process. The United Kingdom participated in the source selection process to determine whether the Joint Air-to-Surface Standoff Missiles program contractor would satisfy the requirements of the United Kingdom's Conventionally Armed Standoff Munitions program. When the United Kingdom selected the Conventionally Armed Standoff Munitions contractor, its design would not meet our requirements.

**Audit Response.** Our report correctly states that the mission need statement for the Joint Direct Attack Munitions program did not consider international cooperation even though other allied nations who participated in the Gulf War could have the same need. The Acting Director implied that, because this is an acquisition reform program, the Joint Direct Attack Munitions does not need to consider international cooperation. We do not agree. On September 20, 1995, almost 3 years after the Joint Requirements Oversight Council validated the mission need statement, the USD(A&T) delegated and issued to the program manager for the Joint Direct Attack Munitions program waiver authority for procedures in DoD Regulation 5000.2-R not required by statute, executive order, or milestone reviews. The USD(A&T) granted the waiver authority due to the program's designation as an acquisition reform pilot program. Even if the waiver authority had been in place when the program office prepared the mission need statement, the waiver authority still required the program manager to document a waiver and concurring legal opinion for exemption from seeking international cooperation. Concerning the Integrated Product Team and its participants, we changed our report to reflect the language proposed by the Acting Director.

On the Joint Air-to-Surface Standoff Missiles program this report clearly states that Air Force officials decided not to delay the Joint Air-to-Surface Standoff Missile contract award until the United Kingdom awarded a similar contract. Our report reflects statements expressed in the Joint Air-to-Surface Standoff Missile program's Single Acquisition Management Plan, May 8, 1996. The plan concluded that the Air Force decided not to wait until the United Kingdom awarded the contract but to proceed because waiting could potentially cause a delay of 3 to 6 months in the contract award.

## **Recommendations for Corrective Action**

**A.1. We recommend that the Under Secretary of Defense for Acquisition and Technology:**

**a. Include the Deputy Under Secretary of Defense (International and Commercial Programs) as a member of the analysis of alternatives Integrated Product Team.**

**b. Require the Defense Acquisition Board to establish exit criteria for Phase 0, "Concept Exploration," to include discussions concerning international opportunities.**

## **Finding A. International Cooperative Research and Development Program**

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**A.2. We recommend that the Commander, Army Training and Doctrine Command; the Chief of Naval Operations; and the Air Force Chief of Staff:**

**a. Document reasons for approving mission need statements that do not explore international opportunities.**

**b. Review the process to identify international cooperative opportunities for Acquisition Category II and III programs.**

### **Management Comments Required**

The Under Secretary of Defense for Acquisition and Technology, the Army, the Navy, and the Air Force did not respond officially to a draft of this report. We request that they provide comments by May 27, 1998.

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## **Finding B. Management Control Program**

The Deputy Under Secretary of Defense (International and Commercial Programs) did not establish the required management control program to assess, test, correct, and report on management controls. The lack of a control program resulted because the Deputy Under Secretary only emphasized fiscal controls, did not properly emphasize the importance of program management controls, and did not provide adequate training to responsible personnel. Although management took some immediate actions, additional steps are necessary. As a result, the DoD International Programs Office could not ensure that its functions complied with Office of Management and Budget and DoD policies and procedures.

### **Management Control Policy**

**Office of Management and Budget Policy.** Office of Management and Budget Circular A-123, Revised, "Management Accountability and Control," June 21, 1995, provides great flexibility by giving agencies the discretion to determine procedures to use in the proper stewardship of Federal resources. Circular A-123 does not require agencies to institute a separate management control process, but, instead, it gives agencies the discretion to determine the procedures to use in establishing, assessing, correcting, and reporting on management controls.

**DoD Policy.** The revised DoD Directive 5010.38, "Management Control (MC) Program," August 26, 1996, and DoD Instruction 5010.40, "Management Control (MC) Program Procedures," August 28, 1996, require DoD organizations to implement a comprehensive system of management controls that provides reasonable assurance that programs are operating as intended and to evaluate the adequacy of the controls. In addition, the regulations require the continuous monitoring of management controls for improving the effectiveness and efficiency of management's operations to achieve its mission. Management control objectives include complying with applicable laws; safeguarding assets; accounting for revenues and expenditures; and avoiding fraud, waste, and mismanagement. In addition, DoD management must take appropriate action to assess, test, correct, and report on management controls and provide appropriate training to personnel.

### **Management Control Program**

The DUSD(I&CP) did not establish a management control program as required by DoD Directive 5010.38 and DoD Instruction 5010.40. Although the DUSD(I&CP) submitted the annual statement of assurance for FY 1996 to USD(A&T) as required, it was based solely on a financial control evaluation of the system of internal accounting and administrative control system that was in effect



during the fiscal year ending September 30, 1996. The DUSD(I&CP) did not emphasize management controls and did not ensure that responsible officials were trained to assess whether the program was operating as intended.

We informed the DUSD(I&CP) that not having a comprehensive system of management controls and not having adequately trained personnel inhibited management from identifying functions that require attention, such as establishing a common database for cooperative research and development activities that is discussed in Finding A. As a result, the DoD International Programs Office could not determine whether its functions complied with Office of Management and Budget and DoD policies and procedures. The lack of a sufficiently comprehensive management control program is, in itself, a material control weakness.

## **Actions Taken**

DUSD(I&CP) officials agreed to take systematic and proactive measures to develop a management control program, train key personnel who are responsible for ensuring that management controls are in place, test the controls continuously, and correct and report on deficiencies when they detect a material weakness.

Officials immediately identified the DoD programs and management processes affecting international cooperative research, development, and acquisition in accordance with Office of Management and Budget Circular A-123. The programs included the North Atlantic Treaty Organization (NATO) Research and Development Program and the Defense Cooperation in Armaments Program. They identified the following six management processes: the International Agreement Process; the Cooperative Opportunities Document Process; the DoD Military Requirements Generation and Approval Process; the Armaments Group Process; the DoD Planning, Programming, and Budgeting System Process; and the National Disclosure Policy Process.

## **Additional Steps Needed**

The DUSD(I&CP) must take additional steps to comply with DoD Directive 5010.38. The DUSD(I&CP) must determine the procedures for assessing, correcting, and reporting on management controls and determine how to evaluate the effectiveness of those controls to help ensure that appropriate action is taken throughout the year to meet the objectives of DoD Directive 5010.38. The DUSD(I&CP) must also ensure that the appropriate personnel are trained in their duties and responsibilities in accordance with DoD Directive 5010.38. See additional comments in Appendix A.

## **Recommendations for Corrective Action**

**B. We recommend that the Deputy Under Secretary of Defense (International and Commercial Programs):**

- 1. Establish a management control program that includes procedures to assess, correct, and report on management controls.**
- 2. Require that the appropriate personnel are properly trained.**

## **Management Comments Required**

The Under Secretary of Defense for Acquisition and Technology did not respond to a draft of this report. We request that the Under Secretary comment by May 27, 1998.

## **Part II - Additional Information**

## **Appendix A. Audit Process**

### **Scope**

We examined the process and criteria used to select candidate projects for the ICR&D programs, the management of the individual projects, and their continuation when research and development is completed. We distributed surveys to the 86 Acquisition Category I programs listed in Appendix E to determine the effort made to consider international cooperation. We reviewed 11 programs that included a selection from the Services and the Ballistic Missile Defense Organization. The programs are the Future Scout and Cavalry System, the Joint Strike Fighter, the Medium Extended Air Defense System, the Multi-Functional Information Distribution System, Cooperative Engagement Capability, the Advanced Field Artillery System/Future Armored Re-Supply Vehicle-Crusader, the Defense Message System, the Follow-on to Tube-Launched Optically Tracked Wire Guided Missile, the Joint Air-to-Surface Standoff Missile, the Joint Service Advanced Vertical Lift Aircraft V-22, and the Joint Direct Attack Munitions.

### **Methodology**

We conducted this economy and efficiency audit from January through December 1997, in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD, and evaluated the adequacy of the management control program as it related to the audit objectives.

We reviewed material dated from October 1992 through October 1997. We evaluated the policies and procedures of the DUSD(I&CP) and Defense agencies for selecting, developing, and managing the programs. We compared and analyzed the process and criteria for program selection, the process for determining the program's effectiveness, and the continuation of the program after the research and development effort is completed. The audit did not rely on computer-processed data or statistical sampling techniques. The audit used the September 1997 listing of Acquisition Category I programs that we obtained from the USD(A&T). We interviewed officials from Office of Secretary of Defense and DoD Components. Also, we distributed 86 surveys to the Defense Acquisition Category I programs listed for 1997. The survey consisted of five topic areas, including ICR&D policies; ICR&D programs; key milestone approval documents including the mission need statement, analysis of alternatives, and the acquisition strategy; foreign partner and fielded allied systems; and training. We received 37 responses to the 86 surveys sent to Acquisition Category I program managers.

## Management Control Program

DoD Directive 5010.38, "Management Control (MC) Program," August 26, 1996, requires DoD managers to implement a comprehensive system of management controls that provides reasonable assurance that programs are operating as intended and to evaluate the adequacy of those controls.

**Scope of Review of Management Control Program.** We reviewed the adequacy of DUSD(I&CP) and DoD Component management controls over the selection, management, and continuation of the programs into production. In assessing those controls, we evaluated plans and procedures, written policies, and management-initiated reviews.

**Adequacy of Management Controls.** The DUSD(I&CP) did not establish an effective management control program to assess, identify, track, and report on the adequacy of management controls as discussed in Finding A and B. The Military Department controls also were not fully effective as addressed in Finding A. Therefore, management must take further steps. The recommendations in this report, if implemented, will correct the problems. A copy of the report will be provided to the senior officials responsible for management controls in the Offices of the USD(A&T) and the Under Secretary of Defense (Comptroller).

**Adequacy of Management's Self-Evaluation.** As stated above, the Office of the DUSD(I&CP) did not establish a comprehensive process to evaluate management controls in the program.

## Areas Not Requiring Further Review

**Nunn-funded Projects.** Congress established funding for the NATO research and development projects in the FY 1986 DoD authorization to urge DoD to pursue opportunities with NATO to cooperate in research, development, and production of Defense systems. Each year, the USD(A&T) submits a report on Nunn-funded programs to Congress. The report identifies and describes the programs selected to receive Nunn-funding and the programs that DoD characterizes as successful. For FY 1997, total Nunn-funding was about \$50 million. The majority of Nunn-funded projects are non-major projects because of the small funding appropriated.

**Selection Process.** DoD uses a steering committee to review the proposed projects submitted by the Services. The steering committee has no criteria other than its expertise to evaluate proposed projects. The committee maintains no minutes of the meetings. The Services' selection process is similar. Service proponents send candidate projects to the Services' International Program Office, which reviews them for legal and financial completeness and forwards them to DoD for possible selection. However, the Army and the Navy do not prioritize the projects that they propose.

**Continuation of Projects.** DoD officials have no criteria to measure the success of a Nunn-funded project because it is difficult to assign a metric to the types of projects that receive Nunn-funding. The 1997 Report to Congress on the

ICR&D programs cites that more than 60 programs have successfully transitioned into new operational capability, while others are important segments to larger programs.

**Tri-Service Measurement Metrics.** During the audit, a tri-service international program group was defining measures for success and developing a DoD-wide database to track international agreements. The efforts of the group may lead to improved metrics to quantify success for an international program. Congressional doubts about DoD management of Nunn-funded projects have already resulted in funding cuts of \$150 million since 1986. DoD officials could reduce the possibility of further budget cuts by improving the management of Nunn-funded projects and by defining criteria for the selection and conclusion of Nunn-funded projects. We did not identify the issues concerning Nunn-funded projects as a finding or make recommendations because:

- Congress was aware of the issues through the DoD annual report, through the Service programs that were selected to receive Nunn-funding, and through the programs that DoD identified as successful; and
- DoD has a group that is working to identify metrics to measure success and to establish a database for international programs.

**Management of the International Programs.** We met with users, program managers, and senior DoD officials to evaluate whether the selection process for programs was adequate. For each program, we reviewed IPT minutes, funding history, program costs, operational requirements documents, memorandums of understanding, and steering committee minutes. The process that the Services and DoD used to determine whether the management of the program was effective was working. The steering committee and the oversight committees addressed and resolved issues as they were identified.

## **Organizations and Individuals Visited or Contacted**

We visited or contacted individuals and organizations within DoD; the General Accounting Office; and the NATO Medium Extended Air Defense System Management Agency, Huntsville, Alabama. Further details are available on request.

## Appendix B. Prior Coverage

### Prior Audit

**Inspector General, DoD, Report No. 93-009, "International Cooperative Research and Development," October 21, 1992.** The audit evaluated the effectiveness of procedures to implement the ICR&D program. The report states that DoD was not actively or effectively pursuing international cooperation to meet its research and development requirements. The report recommended that the Deputy Secretary of Defense delegate authority to the Deputy Under Secretary of Defense (International Programs), now called the DUSD(IC&P), to:

- streamline the memorandum of understanding processing procedures and expedite the issuance of pending instructions on international cooperation;
- resolve conflicts over the issuance of guidance; and
- establish cooperative programs for international cooperation.

The report also recommended that the Directors of Defense agencies and the Service Acquisition Executives establish management controls to ensure that program managers evaluate the feasibility of cooperative programs. The Deputy Secretary of Defense deferred comments on the draft report until the final report. The Under Secretary of Defense for Acquisition, renamed the USD(A&T), concurred with the recommendations except for realigning the Office of Defense Cooperation under the Deputy Under Secretary of Defense (International Programs), which was later dropped. The DoD and the Services concurred, in principle, with establishing management controls to ensure that program managers evaluate the feasibility of cooperative programs.

In response to the audit report, in September 1994, the Deputy Secretary of Defense established interim policy to streamline the memorandum of understanding process. The Deputy Secretary assigned new staffing procedures and timelines to reduce the international agreement development time. The procedures included a three-step process that included: the initiation of a summary statement of intent to negotiate with our allies, informal negotiations, and formal review and approval of international agreements.

In addition, in May 1996, the Principal Deputy Under Secretary of Defense for Acquisition and Technology established the Office of the DUSD(I&CP) to assume responsibilities that included policy for specific dual-use-technology functional areas and policy, plans, and programs for commercial product insertion investments relative to Defense applications. Further, because DoD and the Services could not agree on guidance for international cooperation, the DUSD(I&CP) issued the "International Armaments Cooperation Handbook," in June 1996. The Handbook is not policy and does not authorize DoD Components to carry out stated responsibilities but only provides information about the instruments, processes, procedures, and programs that collectively make up the international armaments cooperation effort. The Handbook focuses on policy and

## **Appendix B. Prior Coverage**

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legislation; organizations and forums supporting international cooperation; the memorandum of understanding process; international programs, such as data exchange agreements, in which participants exchange information and share costs; and the foreign comparative testing program, in which DoD tests foreign systems to determine whether they can meet the identified deficiency.

In June 1996, the Deputy Secretary of Defense established an Armaments Cooperation Steering Committee to lead the renaissance in armaments cooperation by leveraging our resources, exploiting the best technology, and ensuring the availability of interoperable equipment. In turn, USD(A&T) established the International Cooperative Opportunities Group, discussed in Finding A, to help harmonize requirements with our allies and establish cooperative programs.

## **Other Review**

**“Report of the Defense Science Board Task Force on International Armaments Cooperation,” August 1996.** In 1996, the USD(A&T) requested the Defense Science Board to investigate a description of a generic model of international cooperation for the 21st century and to identify specific management actions that DoD must implement to allow successful program execution on international efforts. The Defense Science Board proposed a model that provides for selection criteria based on common coalition needs, necessary policy, procedural and organizational changes, the national option for scouring critical Defense capabilities and technologies in Europe and North America, and the potential to realize greater collective cooperation as the process matures. The Defense Science Board urged USD(A&T) to assign outstanding officers to international programs, elevate intentional experience to the same level as joint duty in the selection criteria for promotions, convene the Commander-in-Chiefs frequently enough to create an advocacy group for interoperability and relationship building, reward success in international efforts, and establish a project team to review 50 international programs and to make recommendations for long-term improvements. The process is ongoing through the Armaments Cooperation Steering Committee and the ICOG.



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## Appendix C. Primary DoD and Service Offices Involved in International Cooperation

### DoD

**The Deputy Under Secretary of Defense (International and Commercial Programs).** The DUSD(I&CP) serves as the focal point for Defense-related international research, development, and other acquisition actions that involve cooperation between the U.S. Government and other governments or industries of allied nations. He manages informal and formal arrangements, coordinates DoD bilateral armaments cooperation relationships with the nations, and implements policies and programs established by the President and the Secretary of Defense for strengthening rationalization and interoperability within areas of responsibility.

**The Under Secretary of Defense for Policy.** The Under Secretary of Defense for Policy represents DoD for formulation of national security and Defense policy and the integration and oversight of DoD policy and plans to achieve national security objectives. He develops policy for Defense-related international negotiations and represents DoD in those negotiations. He also develops policy on the conduct of alliances and Defense relationships with foreign governments, their military establishments, and international organizations, and integrates and oversees plans and programs undertaken in conjunction with those alliances and Defense relationships.

**Director, Program Analysis and Evaluation.** The Director, Program Analysis and Evaluation, is the principal staff assistant to the Secretary of Defense for program analysis and evaluation. The Director performs analyses and evaluations of plans, programs, and budget submissions in relation to projected threats, allied contributions, estimated costs, resource constraints, and DoD objectives and priorities. In addition, the Director identifies issues and evaluates alternative programs; initiates programs, actions, and tasking to ensure adherence to DoD policies and national security objectives; and ensures that programs are designed to accommodate operational requirements and promote the readiness and efficiency of the United States.

**DoD Overseas Liaison Offices.** DoD has offices of Defense cooperation and security assistance in many U.S. embassies. The offices assist technical project offices and Service international program offices to obtain information on and assess the opportunities for cooperative projects with the host nation. They are responsible for overseeing and implementing in-country security assistance and foreign military sales activities and are significant in facilitating cooperation in research and development.

## **Appendix C. Primary DoD and Service Offices Involved in International Cooperation**

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### **Army**

**The Deputy Under Secretary of the Army (International Affairs).** The Deputy Under Secretary of the Army (International Affairs) is responsible for the armaments Cooperative Research and Development Program and reviewing and coordinating international agreements, including the management of foreign comparative test programs. He reviews and coordinates Army international agreements and cooperative logistics, supports the NATO Army Armaments Group panels, and tracks and reports on the financial management of armaments cooperation programs. The Deputy Under Secretary also provides a centralized management database for international cooperative programs; provides an overseas presence in selected countries; promotes Multi-National Force Compatibility; negotiates and monitors international agreements; identifies opportunities for cooperation; and facilitates Army access to foreign research, technology, and materiel.

**Army Overseas Liaison Offices.** The Army maintains research, development, and standardization groups in Australia, Canada, France, Germany, and the United Kingdom. The groups are responsible for all aspects of international cooperative activities, with an emphasis on maintaining links between Army research establishments and those of the host nation. The Army also has research offices in the Far East. The offices sponsor basic research through grants and contracts.

### **Navy**

**The Assistant Secretary of the Navy (Research, Development, and Acquisition).** The Assistant Secretary of the Navy (Research, Development, and Acquisition) is responsible for developing policy and oversight for Navy international research, development, and acquisition efforts including international armaments cooperation. He established the Navy International Program Office, which is responsible for all international armaments cooperation activities, including cooperative research and development agreements, security assistance, and international programs including cooperative research, development, production, in-service support, foreign comparative test and evaluation, foreign procurement, personnel exchange actions, data exchange agreements, and no-cost loans.

**Navy Overseas Liaison Offices.** The Office of Naval Research maintains research and development liaison offices in the United Kingdom and in Japan. The foreign field offices survey worldwide findings, trends, and achievements in science and technology and establish and maintain liaison between the Navy and foreign organizations that conduct programs of interest to the Navy. Liaison includes international, bilateral, and multilateral cooperative research and development programs, foreign weapons programs, and scientific and technical exchange programs.

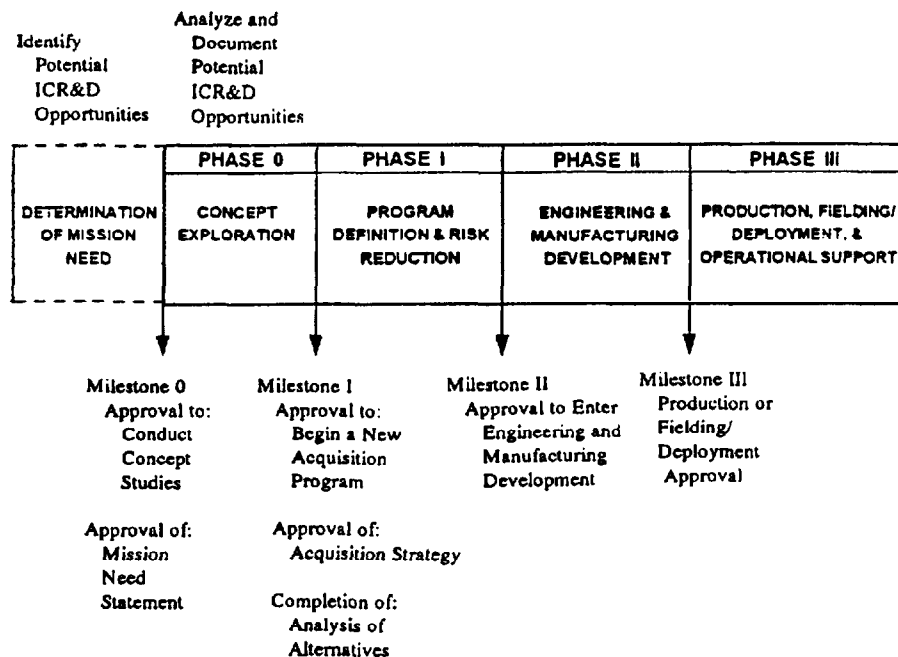
## **Air Force**

**The Deputy Under Secretary of the Air Force (International Affairs).** The primary focus of the Deputy Under Secretary of the Air Force (International Affairs) is oversight of foreign military sales and security assistance programs. He is also responsible for international programs. Also, he oversees international cooperative research, development, and acquisition programs. Program office activities include managing the foreign comparative test programs, reviewing and coordinating all international agreements, performing cooperative logistics, and supporting the NATO Advisory Group for Aerospace Research and Development.

**Air Force Overseas Liaison Offices.** The Air Force maintains a European and an Asian Office of Aerospace Research and Development, which are an extension of the Air Force Office of Scientific Research. The office monitors basic and applied aerospace-related technology and maintains close contact with Air Force laboratories to provide continuing assessments of technical areas for potential cooperative research.

## Appendix D. Acquisition Process and Key Documents

The DoD Regulation 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs," March 15, 1996, establishes a general model for managing all DoD acquisition programs. Defense agencies and Services may tailor the model as needed to structure their programs into a logical progression of time periods separated by decision points or milestones to reduce risk, ensure affordability, and provide management information for decisionmaking. The model and the description of Defense Acquisition Board documents that are critical to an effective search for international cooperative opportunities follow.



Source: Fundamentals of System Acquisition Course Acquisition 101

### ICR&D Opportunities in Acquisition Milestones and Phases

**Mission Need Statement.** The mission need statement defines, describes, and justifies a mission need to satisfy a capability deficiency. Chairman of the Joint Chiefs of Staff Instruction 3170.01, "Requirements Generation System," June 13, 1997, establishes policies and procedures for developing, reviewing, and validating the mission need statement. The Service or DoD Component must identify known

## **Appendix D. Acquisition Process and Key Documents.**

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systems or programs that are currently being used, developed, or produced by other Services or allied nations that address similar needs. The DoD Component must indicate, but not evaluate, potential areas of study or concept exploration of allied systems. The Component prepares the mission need statement at Milestone 0, "Approval to Conduct Concept Studies," and forwards it to the Joint Requirements Oversight Council for validation.

**Analysis of Alternatives.** The DoD or Service Components responsible for the mission need statement must prepare an analysis of alternatives, beginning with program initiation, Milestone I, "Approval to Begin a New Acquisition Program." The analyses aid and document decisionmaking by illuminating the advantages and disadvantages of alternatives, including cost and sensitivity of each alternative to possible changes in key assumptions, and including discussion of interoperability and commonality of components or systems that are similar in function to other DoD or allied programs. The analysis of alternatives also links system requirements and system evaluation measures of effectiveness. For each system, PA&E prepares draft guidance on key elements of the analysis of alternatives to include alternatives, models, effectiveness analysis, cost-effectiveness analysis, and sensitivity analysis and forwards the guidance to the integrated product team convened to prepare the analysis of alternatives.

**Acquisition Strategy.** The DoD or Service Component uses the acquisition strategy for program execution, beginning at Milestone I, "Approval to Begin a New Acquisition Program." The goal is to develop an acquisition strategy to minimize the time and cost to satisfy the need. The strategy addresses cost, risk, management, contract approach, and the potential for enhancing reciprocal Defense trade and cooperation, including ICR&D, and production.

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## Appendix E. List of Acquisition Category I Programs Surveyed

### DoD

Chemical Demilitarization Program-Cooperative Threat Reduction\*  
Chemical Demilitarization Program-Alternative Technologies and Approaches\*  
Defense Message System\*  
Global Broadcast Service  
Joint Strike Fighter\*  
National Polar Orbiting Operational Environmental Satellite System\*

### Army

Abrams Tank Upgrade-M1A1  
Advanced Anti-Tank Weapon System (Javelin)  
Advanced Field Artillery Tactical Data System\*  
All Source Analysis System (Army Tactical Command and Control System)\*  
Advanced Field Artillery System/Future Armored Re-supply Vehicle-Crusader\*  
Advanced Threat Infrared Countermeasures/Common Missile Warning System  
Army Tactical Missile System-Brilliant Armor Submunition/Anti-Personnel  
Anti-Material Blocks I and IA\*  
Bradley Fighting Vehicle System  
Combat Service Support Control System (Army Tactical Command and Control System)\*  
Family of Medium Tactical Vehicles\*  
Follow-on to Tube-Launched Optically Tracked Wire Guided Missile\*  
Forward Area Air Defense Command, Control, and Intelligence System  
Helicopter-Blackhawk Utility Helicopter  
Helicopter-Comanche  
Helicopter-Kiowa Warrior  
Helicopter-Longbow Apache\*  
Hellfire Modular Missile System  
Joint Surveillance and Target Attack Radar System Ground Station Module System  
Maneuver Control System (Army Tactical Command and Control System)\*  
Multiple Launch Rocket System Upgrade  
Secure Mobile Anti-Jam Reliable Tactical Terminal\*  
Sense and Destroy Armor\*  
Single-Channel Ground and Airborne Radio System-VHF

\* Programs that responded to our survey.

## **Navy**

Advanced Amphibious Assault Vehicle\*  
Aircraft Carrier Nimitz Class Nuclear Powered (CVN-68)  
Aircraft E-2C Reproduction Aircraft  
Aircraft F/A-18 E/F Hornet Aircraft  
Air-to-Air Missile Upgrade\*  
Amphibious Support Ship-LHD 1\*  
Amphibious Support Ship-LPD 17  
Coastal Minehunter-MHC 51\*  
Cooperative Engagement Capability\*  
Fast Combat Support Ship (AOE-6)  
Guided Missile Destroyer (DDG51)\*  
Joint Standoff Weapon  
Joint Service Advanced Vertical Lift Aircraft V-22\*  
Multi-Functional Information Distribution System  
Multi-Mission Helicopter Upgrade-SH-60R  
Navy Extremely High Frequency Satellite Communication Program  
New Attack Submarine-NSSN\*  
Sea Launched Ballistic Missile Trident II  
Sea Launched Cruise Missile-Tomahawk  
Short Take-Off and Landing Close Air Support Aircraft-Remanufacture (AV-8B)  
Standard Surface-to-Air Missile (Block IV)  
Strategic Sealift\*  
Submarine-Seawolf-SSN 21  
Surface Ship Anti-Submarine Warfare System (AN SQQ-89)\*  
Undergraduate Jet Pilot Training System-T-45TS\*  
United States Marine Corps Helicopter H-1 Upgrades Advanced Medium Range

## **Air Force**

Advanced Medium Range Air-to-Air Missile  
Airborne Warning and Control System Radar Systems Improvement Program\*  
Airborne Laser\*  
Aircraft C-130J-Hercules\*  
Aircraft F-22  
B-1 Aircraft Conventional Mission Upgrade\*  
B-2A Aircraft  
C-17A Globemaster III Aircraft\*  
Cheyenne Mountain Upgrade  
Defense Meteorological Satellite Program  
Defense Support Programs Satellite System/Space-Based Infrared System  
Program  
Evolved Expandable Launch Vehicle  
Global Positioning System, Navstar  
Joint Air-to-Surface Standoff Missile  
Joint Direct Attack Munitions\*  
Joint Primary Aircraft Training System

\* Programs that responded to our survey.

## **Appendix E. List of Acquisition Category I Programs Surveyed**

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Joint Services Imagery Processing System  
Joint Surveillance and Target Attack Radar System  
Joint Tactical Information Distribution System  
Milstar Satellite and User Equipment  
Minuteman III Guidance Replacement Program  
Minuteman III Propulsion Replacement Program  
National Airspace Systems  
Sensor Fuzed Weapon\*  
Titan IV Rocket

### **Ballistic Missile Defense Organization**

Medium Extended Air Defense System\*  
Missile-Patriot Advanced Capability-3\*  
National Missile Defense\*  
Navy Area Theater Ballistic Missile Defense  
Navy Theater Wide Ballistic Missile Defense System  
Theater High Altitude Area Defense

\* Programs that responded to our survey.



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## Appendix F. Service Process for Identifying International Cooperative Opportunities

**Army Identification Processes.** The Army uses two processes to identify ICR&D opportunities. One allows Army officials to suggest a cooperative venture with an international partner through informal meetings with our allies, at forums such as general officer staff talks, research and development symposiums, or standardization groups. The informal process usually fosters cooperation in the areas of data exchange agreements or the NATO cooperative research and development programs that are referred to as Nunn-funded projects.

The Army also identifies cooperative opportunities through the requirements generation process, which begins with the future warfighting vision of the Army. The Army develops future operational capabilities that become the focus of the integrated concept team analyses. The team, consisting of the developer, user, and other interested Army offices, conducts the reviews and analyzes the user-required capability to ensure that the need can only be met by a material solution. When confirmed, the proponent combat developer prepares and coordinates the mission need statement within the Army and then submits it to the Joint Requirements Oversight Council for validation.

For Acquisition Category I programs, before Milestone I, the Army organization responsible for the mission need statement prepares an analysis of alternatives and an acquisition strategy. The analysis of alternatives provides information on operational capabilities, potential technology concepts, and materiel solutions that could satisfy the mission need statement in determining whether any of the proposed alternatives offer sufficient military or economic benefit. The acquisition strategy identifies alternative approaches to solve the requirements.

**Navy Identification Process.** The Navy also uses two processes to identify international cooperative research and development opportunities. The informal process is similar to the Army process. The Navy formal requirements generation process is a 12-step process in which the program sponsor reviews the deficiency to ensure that the Navy has evaluated all potential doctrine, training, leader development, and organizational solutions. For an Acquisition Category ID program, the sponsor prepares a draft mission need statement to Navy assessment officials for administration, tracking, and evaluation by other Services for joint potential. However, the Navy does not distribute the mission need statement to the Navy International Program Office. The Chief of Naval Operations endorses the mission need statement and sends it to the Joint Requirements Oversight Council for validation.

The Navy program sponsor must also prepare an analysis of alternatives that identifies the activity responsible for conducting the analysis, a set of alternatives or issues that the Navy must address, a timetable, and any operational constraints.

At program initiation, the program manager develops the acquisition strategy. The program manager consults with the Navy International Program Office during development of the international element of the program's acquisition strategy to

## **Appendix F. Service Process for Identifying International Cooperative Opportunities**

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obtain relevant international program information, such as existing or proposed research, development, and acquisition; international agreements; and data exchange agreements with allied nations.

**Air Force Identification Process.** The Air Force also uses two methods to identify international cooperative research and development opportunities. The informal method is similar to that used by the Army. The formal method is the Air Force planning process, which identifies mission deficiencies, analyzes possible solutions, assesses combat capability, and determines combat readiness. The process has four steps. For the first step, major commands perform a mission area assessment based on top-level guidance, such as the Defense Planning Guidance, to identify operational and support tasks to achieve military objectives. The second step uses a mission-need analysis to assess Air Force ability to accomplish the tasks. For the third step, major commands develop a mission need statement to document specific material deficiencies. The Air Force conducts steps three and four during the mission solution analysis by technical planning IPTs that coordinate and provide direct linkage between acquisition and warfighting communities. The teams include functional experts from all disciplines. The teams evaluate the solutions and produce cost-benefit-weighted lists of potential solutions to meet the user's need. In preparing the analysis of alternatives, the lead major command convenes a study team that prepares a study plan to guide the effort. The team explores the issues and alternatives and determines the preferred solution. The Air Force considers the results of the analysis of alternatives, selects the preferred alternative, and prepares the acquisition strategy.

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## **Appendix G. Report Distribution**

### **Office of the Secretary of Defense**

Under Secretary of Defense for Acquisition and Technology  
  Director, Defense Research and Engineering  
  Deputy Under Secretary of Defense (Acquisition Reform)  
  Deputy Under Secretary of Defense (Logistics)  
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  Deputy Chief Financial Officer  
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  Director, Program Analysis and Evaluation  
Assistant Secretary of Defense (Command, Control, Communications and Intelligence)  
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### **Department of the Army**

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### **Department of the Air Force**

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  Deputy Under Secretary of the Air Force (International Affairs)  
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Office of Management and Budget  
Technical Information Center, National Security and International Affairs Division,  
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Chairman and ranking minority member of each of the following congressional committees and subcommittees:

Senate Committee on Appropriations  
Senate Subcommittee on Defense, Committee on Appropriations  
Senate Committee on Armed Services  
Senate Committee on Governmental Affairs  
House Committee on Appropriations  
House Subcommittee on National Security, Committee on Appropriations  
House Committee on Government Reform and Oversight  
House Subcommittee on Government Management, Information, and Technology,  
Committee on Government Reform and Oversight  
House Subcommittee on National Security, International Affairs, and Criminal Justice,  
Committee on Government Reform and Oversight  
House Committee on National Security

## **Part III - Management Comments**

# Program Analysis and Evaluation Comments



OFFICE OF THE SECRETARY OF DEFENSE  
1800 DEFENSE PENTAGON  
WASHINGTON, D.C. 20301-1800

March 31, 1998



## MEMORANDUM FOR THE DoD INSPECTOR GENERAL

SUBJECT: Comments on Draft Audit Report on International Cooperative Research and Development Program (Project No. 7AB-0026) (Your January 27, 1998 Memo)

We have reviewed the subject audit report and concur in general on your findings and recommendations in all but one area of Finding A "International Cooperative Research and Development Program". I would like to clarify policy as we understand it and point out some additional facts about specific programs you have used as examples in the report that may impact your recommendations.

First, we disagree with your conclusion that the Joint Direct Attack Munitions program mission need statement did not consider international cooperative research and development partnership (page 11 of your report). The JDAM requirement was to acquire an all-weather precision guided munition as a means to make the existing inventory of U.S. general-purpose bombs all-weather and more accurate. The acquisition approach was structured to satisfy the urgent need of the U.S. military, thus the program was put on a fast fill track and became a pilot program of Acquisition Reform. The allied system you referred to was considered and, as you pointed out, did not satisfy any of the above mentioned requirements.

Second, we disagree with your interpretation of the policy on both the role PA&E plays in the process when a potential international partner is involved and who is included on the AoA IPT. Page 13 of your report states:

*"If the analysis of alternatives IPT does not identify a potential allied partner during the analysis of alternatives process, and if the mission need statement has not identified a potential allied partner, then PA&E will not direct the analysis of alternatives IPT to analyze an international cooperative opportunity. PA&E officials informed us that the DUSD(I&CP) is not part of the analysis of alternatives IPT and has a role only if it already has allied involvement in a similar project."* [italics added]

Neither of these points is entirely correct. PA&E provides the AoA guidance; the AoA IPT (of which PA&E is a major player) acts on that guidance. If international/allied systems exist that are potential alternatives, they are included by PA&E as a matter of practice. Regarding your second point, the DUSD(I&CP) is an OIPT member. The DUSD(I&CP) principal and/or his empowered Action Officer have the duty and ability to bring international opportunities to the attention of the OIPT at any milestone program review. Moreover, every OIPT member has the opportunity to place an Action Officer on the AoA IPT. However, they generally choose to be members only in the case where there is a clear-cut international alternative to be examined. For example, they were well represented in the AIM-9X AoA because ASRAAM was the principal



alternative and participated at the outset of the JASSM AoA because CASOM was a potential alternative. In light of the above mentioned policy and factual clarifications, I suggest you change your recommendation on page 13 (last sentence in the paragraph beginning "The Director, Program Analysis and Evaluation (PA&E), oversees.....") to the following: *USD(A&T) should ensure DUSD(I&CP) participates on the analysis of alternatives IPT for all MDAP program reviews so that he/she may identify potential international partnerships that the IPT could evaluate.*

Revised

Finally, we would like to clarify the facts on the discussion of acquisition strategy plans for JASSM on page 13. Your description gives the impression we were planning to wait on a decision on JASSM until after the United Kingdom awarded their contract for the Conventionally Armed Standoff Munition (CASOM) so as to satisfy the international cooperation requirement. We did not delay our decision on JASSM; the US was behind the UK schedule from the beginning. We were cooperating with the British, via an MOU, in the acquisition process. In an attempt to provide insight as to whether the potential JASSM contractors would satisfy the CASOM requirement, the British participated in our source selection process. We were not able to do so on their selection, but retained the option of possible cooperation depending on whom they chose as their CASOM contractor. However, when the UK selected a French contractor whose design did not satisfy the JASSM requirement, we proceeded with our selection of a domestic contractor to satisfy the now-domestic JASSM requirement.

I hope the following provides helpful information on your report. Address further discussion items to Russ Vogel, 695-7282, or Paul Farmer, 697-0521.



Robert R. Soule  
Acting Director, PA&E





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